

REMARKS

Summary of the Office Action

In the Office Action, claim 1 stands rejected under 35 U.S.C. 112, 2nd Paragraph, as being indefinite.

Claim 1 has been rejected under 35 U.S.C. 102 (b), as being anticipated by U.S. Patent No. 5,280,509 to *Py*.

Claim 1 has also been rejected under 35 U.S.C. 102 (b), as being anticipated by U.S. Patent No. 3,607,630 to *West*.

Summary of the Response to the Office Action

Applicant proposes amending claim 1 as shown above. Accordingly, claim 1 is pending for further consideration.

Rejection under 35 U.S.C. 112, 2nd Paragraph

Claim 1 stands rejected under 35 U.S.C. 112, 2nd Paragraph, as being indefinite.

Applicant proposes amending claim 1, as shown above. These amendments have been made solely for the purpose of correcting typographical errors and other informalities, and not for purposes related to patentability.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. 112, 2nd Paragraph, rejection of claim 1.

All Claims are Allowable

In the Office Action, claim 1 has been rejected under 35 U.S.C. 102 (b), as being anticipated by U.S. Patent No. 5,280,509 to *Py*. Claim 1 has also been rejected under 35 U.S.C. 102 (b), as being anticipated by U.S. Patent No. 3,607,630 to *West*. Applicant traverses this rejection for the following reasons.

With regard to independent claim 1, Applicant respectfully asserts that *Py* and *West*, viewed either singly or in combination, do not teach or suggest an ex-vessel core melt retention device including, at least, “horizontal jacket pipes located on a shell boundary of a cavity floor, the horizontal jacket pipes having water inlets A formed at their lower half, the water inlets including holes having diameters of approximately 2-5 cm and allowing water to enter the bottom of the pipes; vertical pipes connected at both ends of the horizontal jacket pipes in the form of a dovetail to communicate with each other, the vertical pipes including open ends to permit water vapor to escape therethrough; and a water supply part located at the lower half of the horizontal jacket pipes for allowing water to enter from the holes at the lower half of the horizontal jacket pipes,” as recited in independent claim 1, as amended.

Support for these features recited in claim 1 can be found at least on page 4, line 19 to page 5, line 13 of the originally filed specification, and in Figs. 1 and 2 of the originally filed drawings. Specifically, referring to Fig. 1, the present invention discloses an ex-vessel core melt retention device including horizontal jacket pipes 110 located on a shell boundary of cavity floor 200. Horizontal jacket pipes 110 include water inlets formed at their lower half. The water inlets include holes 111 having diameters of approximately 2-5 cm, thus allowing water to enter the bottom of pipes 110. As shown in Fig. 1, the retention device further includes vertical pipes 130 connected at both ends of the horizontal jacket pipes 110 in the form of a dovetail to communicate with each other. Vertical pipes 130 include open ends to permit water vapor to escape therethrough. As shown in Fig. 2, a water supply part 220 is provided at the lower half of horizontal jacket pipes 110 for allowing water to enter from holes 111.

The Office Action cites *Py* and *West* as teaching or suggesting the invention recited in claim 1 of the present invention.

Specifically, as shown in Fig. 5 of *Py*, *Py* discloses a device 11 for cooling and protecting vessel 3. Device 11 includes channels 20 and collector assemblies 21 and 22, which form a closed loop and facilitate the supply and removal of cooling and heated fluid to channels 20, (Col. 4:31-36). *Py* further discloses vertical pipes 12 and 13 for supplying and removing cooled

and heated water, (Col. 4:1-7). Contrary to the present invention as recited in independent claim 1 and as discussed above, *Py* discloses a closed loop system for cooling and protecting vessel 3. Accordingly, *Py* does not teach or suggest, at least, “vertical pipes connected at both ends of the horizontal jacket pipes in the form of a dovetail to communicate with each other, the vertical pipes including open ends to permit water vapor to escape therethrough,” as recited in independent claim 1, as amended. Moreover, *Py* does not teach or suggest, “horizontal jacket pipes located on a shell boundary of a cavity floor, the horizontal jacket pipes having water inlets A formed at their lower half, the water inlets including holes having diameters of approximately 2-5 cm and allowing water to enter the bottom of the pipes,” as recited in independent claim 1, as amended. Lastly, *Py* does not teach or suggest, “a water supply part located at the lower half of the horizontal jacket pipes for allowing water to enter from the holes at the lower half of the horizontal jacket pipes,” as recited in independent claim 1, as amended.

West discloses a water-cooled metal basin including storage tank 40 for supplying water through inlet header 34 via riser 38 and cold water trap 39, (Col. 3:56-57). As shown in Figs. 1 and 5 of *West*, inlet header 34 provides water to cooling tubes 32. Tubes 32, which include upturned portions at each end thereof, are connected to inlet header 34 at a first upturned portion and outlet header 36 at a second upturned portion, (Col. 3:4043). Contrary to the present invention as recited in independent claim 1 and as discussed above, *West* does not teach or suggest, at least, “vertical pipes connected at both ends of the horizontal jacket pipes in the form of a dovetail to communicate with each other, the vertical pipes including open ends to permit water vapor to escape therethrough,” as recited in independent claim 1, as amended. Moreover, *West* does not teach or suggest, “horizontal jacket pipes located on a shell boundary of a cavity floor, the horizontal jacket pipes having water inlets A formed at their lower half, the water inlets including holes having diameters of approximately 2-5 cm and allowing water to enter the bottom of the pipes,” as recited in independent claim 1, as amended. Pipes 32 for *West*, which are clearly not located “on a shell boundary of a cavity floor,” as recited in independent claim 1 of the present invention, require a separate storage tank 40 for supplying water, as opposed to the

horizontal jacket pipes for the present invention. Moreover, Applicant further notes that *West* does not teach or suggest, “a water supply part located at the lower half of the horizontal jacket pipes for allowing water to enter from the holes at the lower half of the horizontal jacket pipes,” as recited in independent claim 1, as amended.

The provision of the “vertical pipes including open ends to permit water vapor to escape therethrough” and “horizontal jacket pipes ...[including]... water inlets including holes having diameters of approximately 2-5 cm and allowing water to enter the bottom of the pipes,” as recited in independent claim 1, provide an ex-vessel core melt retention device with significantly greater cooling capabilities, as compared to the conventional devices of *Py* and *West*.

Accordingly, Applicant respectfully asserts that any combination of *Py* and *West* would fail to teach or suggest an ex-vessel core melt retention device including, at least, “horizontal jacket pipes located on a shell boundary of a cavity floor, the horizontal jacket pipes having water inlets A formed at their lower half, the water inlets including holes having diameters of approximately 2-5 cm and allowing water to enter the bottom of the pipes,” “vertical pipes connected at both ends of the horizontal jacket pipes in the form of a dovetail to communicate with each other, the vertical pipes including open ends to permit water vapor to escape therethrough,” and “a water supply part located at the lower half of the horizontal jacket pipes for allowing water to enter from the holes at the lower half of the horizontal jacket pipes,” as recited in independent claim 1, as amended.

As pointed out in MPEP § 2131, “[t]o anticipate a claim, the reference must teach every element of the claim.” “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

Verdegaal Bros. v. Union Oil Co. Of California, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Moreover, as pointed out in M.P.E.P. § 2143.03, “[t]o establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art”. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). Since these criteria have clearly not been met, Applicant respectfully asserts that the rejection under 35 U.S.C. § 102 (b) should be

withdrawn because *Py* and *West* clearly do not teach or suggest each feature of independent claim 1.

In view of the above arguments, Applicant respectfully requests the rejection of independent claim 1 under 35 U.S.C. § 102 be withdrawn.

CONCLUSION

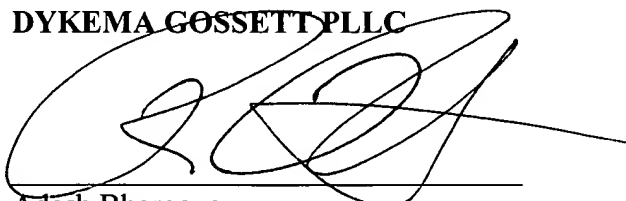
In view of the foregoing, Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicant's undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 04-2223. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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Dated: April 2, 2003

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